



CALCULATION OF ELECTROLYTE QUANTITY FOR UPS SYSTEMS

The City of Mountain View's Fire Protection Engineer has provided this form to help determine exemption or compliance with 2013 CFC Section 608, provisions regulating Stationary Storage Battery Systems.

Company or Tenant Name: _____

Project Street Address: _____

Room Number and Location of UPS equipment: _____

Manufacture(s) Cut Sheets (*Must provide & indicate electrolyte volume per battery*):
Yes_____ / No_____

UPS System equipment (*Battery Type*): _____

Quantity of Batteries: _____

Quantity of electrolyte volume within EACH Battery: _____

ELECTROLYTE CALCULATION:

(Quantity of Batteries: _____) X (_____ Quantity of Electrolyte Volume within EACH Battery) = _____

EXAMPLE:

Quantity of Batteries: **100** _____

Quantity of Electrolyte Volume within EACH Battery: **.054** gallons _____

(100) X (.054) = 5.4 gallons



CITY OF MOUNTAIN VIEW

Community Development Department • Building Inspection Division
500 Castro Street • Post Office Box 7540 • Mountain View, California 94039-7540 • 650-903-6313 • FAX 650-962-8501

CALCULATION OF ELECTROLYTE QUANTITY FOR UPS SYSTEMS

The City of Mountain View's Fire Protection Engineer has provided this form to help determine exemption or compliance with 2013 CFC Section 608, provisions regulating Stationary Storage Battery Systems.

Company or Tenant Name: Construction, Inc.

Project Street Address: 500 Castro Street

Room Number and Location of UPS equipment: Room #109 - First Floor

Manufacture(s) Cut Sheets (Must provide & indicate electrolyte volume per battery):

Yes ☒ / No ☐

UPS System equipment (Battery Type): Power Solutions, Inc. - UPS 12-300MR

Quantity of Batteries: 8

Quantity of electrolyte volume within EACH Battery: 1.2

ELECTROLYTE CALCULATION:

(Quantity of Batteries 8) X (1.2 Quantity of Electrolyte Volume within EACH Battery) = 9.6 gallons

EXAMPLE:

Quantity of Batteries: **100** _____

Quantity of Electrolyte Volume within EACH Battery: **.054** gallons _____

(100) X (.054) = 5.4 gallons

Manufactures Specifications and Cut Sheets

HIGH RATE MAX



Valve Regulated Lead Acid Battery

Designed for UPS Standby Power Applications.

APPLICATIONS

- Data Centers
- Network Operations Centers
- Industrial Process Control Facilities
- Internet Housing Sites
- Semiconductor Manufacturing
- Banks & Financial Markets
- Power Generation Plants
- Hospitals & Testing Laboratories
- Emergency 911 Response Centers

FEATURES & BENEFITS

- 10 year design life @ 25°C
- Absorbent Glass Mat (AGM) technology for efficient gas recombination of up to 99% and freedom from electrolyte maintenance.
- 3 Year Warranty (refer Dynasty warranty card, 41-9027)
- Patented Long Life Alloy having the lowest calcium levels in the industry - minimizing grid growth, reducing gassing, and extending battery life.
- Patented UL Recognized Flame-arresting vents in each cell for safety and long life.
- Designed with the same recombination, thermal runaway prevention, gassing and flame retardant characteristics of the Bellcore 4228 compliant Dynasty Telecom products.
- Flame retardant polypropylene case and cover compliant with UL94-V2
- Proprietary Fixed Orifice Plate Pasting technology applying active materials on both sides of the grid for consistent cell-to-cell performance, higher capacity and uniform grid protection.
- Thermally welded case-to-cover bond to eliminate leakage.
- Can be operated in any orientation. Upright, side or end mounting recommended.
- Not restricted for air transport - Complies with IATA/ICAO Special Provisions A67.
- Not restricted for surface transport - Classified as non-hazardous material as related to DOT-CFR Title 49 parts 171-189.
- Not restricted for water transport - Classified as non-hazardous material per IMDG Amendment 27.

TECHNICAL DATA

Model	Voltage	AH 20 hr*	Constant Power Discharge Ratings - Watts per Cell @ 77°F (25°F)									Weight	
			Operating Time (in minutes) to 1.67 Volts per Cell										
			5	10	15	20	30	40	50	60	90	lbs	kg
UPS12-100MR	12	26.0	172	117	90.9	75.4	57.2	46.5	39.3	34.1	24.6	21.0	10.0
UPS12-150MR	12	34.6	290	193	148	120	88.9	71.1	59.4	51.1	36.1	27.3	12.4
UPS12-210MR	12	53.8	373	261	206	169	127	102	85.1	73.3	51.9	40.0	18.0
UPS12-300MR	12	78.6	546	385	300	245	183	147	123	106	75.0	58.4	26.5
UPS12-350MR	12	93.2	619	440	350	289	216	173	144	123	85.9	67.4	30.5
UPS12-400MR	12	103	716	506	400	328	244	195	162	139	97.2	75.8	34.4
UPS12-490MLRP	12	115	772	607	488	402	300	240	201	173	122	83.0	38.0
UPS12-490MR	12	141	771	593	488	411	317	258	218	189	135	100.0	45.0
UPS12-540MR	12	149	875	657	537	451	343	277	231	198	139	100.0	45.0
UPS6-620MR	6	199	938	747	620	530	410	335	283	245	174	72.0	33.0

* Nominal 20 hr rate to 1.75 VPC in Ampere-Hours.

SPECIFICATIONS

Operating Temperature Range with temperature compensation	Discharge: -40°F (-40°C) to +160°F (71°C) Charge: -10°F (-23°C) to +140°F (60°C)
Nominal Operating Temperature Range	+74°F (23°C) to +80°F (27°C)
Recommended Maximum Charging Current Limit	C/5 amperes @ 20hr rate
Float Charging Voltage	13.65 ± 0.15 VDC average per 12V unit (6.75 to 6.90 per 6V unit)
Maximum AC Ripple (Charger)	0.5% RMS or 1.5% P-P of float charge voltage recommended for best results. Max voltage allowed = 1.4% RMS (4% P-P) Max current allowed = C/20
Self Discharge	Battery can be stored up to 6 months at 77°F (25°C) before a freshening charge is required. Batteries stored at temperatures greater than 77°F (25°C) will require recharge sooner than batteries stored at lower temperatures. See C&D brochure 41-7272, Self-Discharge and Inventory Control for details.
Equalize charge and cycle service voltage	14.40 to 14.80 VDC average per 12V unit @ 77°F (25°C) (7.20 to 7.40 VDC per 6V unit.)
Terminal: Flag	0.22 in. clearance hole to accept 0.1875 in. or 10-32 bolt (UPS12-100MR)
Terminal: Inserted	Threaded copper alloy insert terminal to accept 10-32 UNF bolt (UPS12-150MR, UPS12-210MR) ¼-20 UNC bolt (UPS12-300MR, UPS12-350MR, UPS12-400MR, UPS12-490MR, UPS12-540MR, UPS6-620MR)
Terminal Hardware Annual Retorque	32 in.-lbs (3.48 N-m) (UPS12-100MR)
Terminal Hardware Initial Torque: Inserted Terminal	40 in.-lbs. (4.5 N-m) (UPS12-100MR) 30 in.-lbs. (3.4 N-m) (UPS12-150MR, UPS12-210MR) 110 in.-lbs. (12.4 N-m) (UPS12-300MR, UPS12-350MR, UPS12-400MR, UPS12-490MR, UPS12-540MR, UPS6-620MR)

DIMENSIONS

	A	B	C	D	E	F
UPS12-100MR	6.54 (166.2)	6.45 (163.7)	5.17 (131.3)	5.07 (128.8)	6.37 (161.7)	6.86 (174.3)
UPS12-150MR	7.76 (197.1)	7.54 (191.4)	5.19 (131.9)	5.02 (127.6)	6.52 (165.7)	6.80 (172.7)
UPS12-210MR	9.0 (228.6)	8.86 (225.1)	5.48 (139.2)	5.31 (134.8)	7.89 (200.3)	8.07 (205.1)
UPS12-300MR	10.27 (260.9)	10.17 (258.4)	6.83 (173.4)	6.65 (168.9)	7.89 (200.3)	8.01 (203.5)
UPS12-350MR	12.04 (305.8)	11.95 (303.5)	6.83 (173.4)	6.65 (168.9)	7.94 (201.6)	8.06 (204.8)
UPS12-400MR UPS12-490MR	13.42 (340.9)	12.75 (323.7)	6.80 (172.7)	6.54 (166.0)	8.40 (213.2)	8.52 (216.4)
UPS12-490MR UPS12-540MR	13.57 (344.7)	12.74 (323.6)	6.80 (172.7)	6.63 (168.4)	10.81 (274.5)	10.93 (277.7)
UPS6-620MR	12.63 (320.8)	12.51 (317.8)	6.97 (177.0)	6.83 (173.4)	8.82 (224.0)	8.94 (227.2)

UPS12-210MR

Constant Power Discharge Ratings - Watts Per Cell @ 77°F (25°C)										
Operating Time to End Point Voltage (in minutes)										
End Point Volts/Cell	5	10	15	20	30	40	45	50	60	90
1.75	341	243	193	162	123	99.0	90.3	83.0	71.5	50.6
1.70	366	253	200	166	125	100	91.1	83.6	71.8	50.4
1.67	373	261	206	169	127	102	92.6	85.1	73.3	51.9
1.65	378	262	205	170	128	102	93.3	85.7	73.8	52.1
1.60	391	265	207	172	129	103	94.0	86.3	74.2	52.3

Constant Power Discharge Ratings - Amperes @ 77°F (25°C)										
Operating Time to End Point Voltage (in hours)										
End Point Volts/Cell	1	2	3	5	8	10	12	20	24	72
1.85	32.6	19.1	13.6	8.68	5.79	4.72	4.01	2.51	2.12	0.73
1.80	34.8	20.3	14.4	9.20	6.12	5.00	4.24	2.65	2.23	0.76
1.75	36.7	21.1	14.9	9.43	6.25	5.05	4.28	2.69	2.27	0.77

Note: Batteries to be mounted with 0.5 in. (1.25 cm) spacing minimum and free air ventilation. Specifications subject to change without notification. Above ratings do not include interunit connector voltage drops.

UPS12-300MR

Constant Power Discharge Ratings - Watts Per Cell @ 77°F (25°C)										
Operating Time to End Point Voltage (in minutes)										
End Point Volts/Cell	5	10	15	20	30	40	45	50	60	90
1.75	493	360	281	232	175	141	129	119	103	73.5
1.70	525	379	293	240	179	144	131	120	104	74.0
1.67	546	385	300	245	183	147	134	123	106	75.0
1.65	564	395	302	247	183	147	134	124	107	76.2
1.60	579	402	306	250	186	150	137	126	109	77.7

Constant Current Discharge Ratings - Amperes @ 77°F (25°C)										
Operating Time to End Point Voltage (in hours)										
End Point Volts/Cell	1	2	3	5	8	10	12	20	24	72
1.85	48.3	28.1	19.9	12.6	8.36	6.82	5.79	3.62	3.05	1.05
1.80	51.1	29.3	20.7	13.1	8.84	7.23	6.13	3.83	3.22	1.08
1.75	52.7	30.1	21.2	13.4	9.16	7.46	6.32	3.93	3.30	1.10

Note: Batteries to be mounted with 0.5 in. (1.25 cm) spacing minimum and free air ventilation. Specifications subject to change without notification. Above ratings do not include interunit connector voltage drops.

UPS12-350MR

Constant Power Discharge Ratings - Watts Per Cell @ 77°F (25°C)										
Operating Time to End Point Voltage (in minutes)										
End Point Volts/Cell	5	10	15	20	30	40	45	50	60	90
1.75	534	410	327	272	205	165	150	138	119	84.3
1.70	596	425	337	280	211	169	154	141	121	84.9
1.67	619	440	350	289	216	173	157	144	123	85.9
1.65	638	455	358	296	220	175	159	145	124	86.5
1.60	669	471	367	302	223	177	161	147	126	87.6

Constant Current Discharge Ratings - Amperes @ 77°F (25°C)										
Operating Time to End Point Voltage (in hours)										
End Point Volts/Cell	1	2	3	5	8	10	12	20	24	72
1.85	53.0	31.8	22.9	14.8	10.6	8.73	7.38	4.56	3.84	1.29
1.80	58.8	34.5	24.6	15.7	10.1	8.35	7.09	4.39	3.69	1.32
1.75	62.6	36.3	25.8	16.4	11.0	8.98	7.57	4.66	3.92	1.34

HAZMAT TABLE: LEAD WEIGHT & ACID CONTENT per CELL TYPES

Product Line	Model	# of Cells per unit	Specific Gravity	Lead Weight per Cell (Lbs)	Electrolyte Weight per Cell (Lbs)	Pure Sulfuric Acid Weight per Cell (Lbs)	Electrolyte Volume per Cell (Gal)
Note: Discontinued Models are located in as separate file: Hazmat Table: Discontinued C&D Products							
VRLA PRODUCTS							
Liberty 1000	LS12-55	6	1.300	6	2.0	0.8	0.2
Liberty 1000	LS12-80	6	1.300	10	2.5	1.0	0.2
Liberty 1000	LS12-100	6	1.300	11	3.1	1.2	0.3
Liberty 1000	LS2-600	1	1.300	68	18.1	7.2	1.7
Liberty 1000	LS4-300	2	1.300	34	9.1	3.6	0.8
Liberty 1000	LS6-125	3	1.300	13	3.7	1.5	0.3
Liberty 1000	LS6-200	3	1.300	23	6.1	2.4	0.6
Liberty 1000 Front Access	FAM12-100	6	1.300	10	2.7	1.1	0.3
Liberty 1000 Front Access	FAM12-150	6	1.300	14	4.6	1.8	0.4
Broadband	BBG85GXL	6	1.325	5	1.2	0.5	0.1
Broadband	BBA160	6	1.300	8	2.1	0.8	0.2
Broadband	BBG165GXL	6	1.300	8	2.1	0.9	0.2
Broadband	BBG165RT	6	1.325	8	2.1	0.9	0.2
Broadband	BBG180GXL	6	1.325	8	2.7	1.1	0.2
Broadband	BBG180RT	6	1.325	8	2.7	1.1	0.2
Deep Cycle	DCS 33	6	1.300	3.3	0.8	0.3	0.1
Deep Cycle	DCS 50	6	1.300	5.0	1.2	0.5	0.1
Deep Cycle	DCS 75	6	1.300	7.0	1.8	0.7	0.2
Deep Cycle	DCS 88	6	1.300	8.2	2.1	0.8	0.2
Deep Cycle	DCS 100	6	1.300	8.3	2.3	0.9	0.2
TEL-series	TEL12-30	6	1.300	3.4	0.8	0.3	0.1
TEL-series	TEL12-45	6	1.300	5.2	1.2	0.5	0.1
TEL-series	TEL12-70	6	1.300	6.9	1.8	0.7	0.2
TEL-series	TEL12-80	6	1.300	8.2	2.1	0.8	0.2
TEL-series	TEL12-90	6	1.300	9.2	2.2	0.9	0.2
TEL-series	TEL6-180	3	1.300	18.0	4.4	1.7	0.4
TEL-series	TEL12-125	6	1.300	12.9	3.2	1.3	0.3
TEL-series	TEL12-105FS	6	1.300	9.8	2.6	1.0	0.2
C&D True FA - TEL	TEL12-105FN5G	6	1.300	7.9	2.4	1.0	0.2
C&D True FA - TEL	TEL12-115FNG	6	1.300	8.0	2.6	1.1	0.2
C&D True FA - TEL	TEL12-145FW	6	1.320	12.9	3.9	1.6	0.4
C&D True FA - TEL	TEL12-155F/FG	6	1.320	10.9	4.1	1.8	0.4
C&D True FA - TEL	TEL12-160FW	6	1.320	13.9	4.1	1.7	0.4
C&D True FA - TEL	TEL12-160F	6	1.320	13.0	3.9	1.6	0.4
C&D True FA - TEL	TEL12-180F	6	1.320	15.0	4.6	1.9	0.4
C&D True FA - TEL	TEL12-190F/FG	6	1.300	14.5	4.9	2.1	0.4
C&D True FA - TEL	TEL12-210F/FG	6	1.300	15.0	4.6	2.0	0.4
C&D True FA - TEL-C	TEL12-105FN5GC	6	1.300	8.2	2.3	0.9	0.2
C&D True FA - TEL-C	TEL12-115FN5GC	6	1.300	8.6	2.5	1.0	0.2
C&D True FA - TEL-C	TEL12-170FGC	6	1.300	12.6	3.8	1.5	0.4
C&D True FA - TEL-C	TEL12-210FGC	6	1.300	15.1	4.5	1.8	0.4
UPS High Rate Max	UPS12-100MR	6	1.310	2.6	0.7	0.3	0.1
UPS High Rate Max	UPS12-150MR	6	1.310	3.5	0.7	0.3	0.1
UPS High Rate Max	UPS12-210MR	6	1.310	5.0	1.2	0.5	0.1
UPS High Rate Max	UPS12-300MR	6	1.310	7.1	1.8	0.7	0.2
UPS High Rate Max	UPS12-350MR	6	1.310	8.2	2.1	0.8	0.2
UPS High Rate Max	UPS12-400MR	6	1.310	9.2	2.3	0.9	0.2
UPS High Rate Max	UPS12-490MRLP	6	1.325	10.4	2.4	1.0	0.2
UPS High Rate Max	UPS12-490MR	6	1.310	12.4	3.2	1.3	0.3
UPS High Rate Max	UPS12-540MR	6	1.310	12.7	3.2	1.3	0.3
UPS High Rate Max	UPS6-620MR	3	1.310	17.0	4.5	1.8	0.4

Building Occupancy Classification Inventory Form

For Use by Unidocs Member Agencies or where approved by your Local Jurisdiction

Plan Check No.: _____ Proposed Occupancy Classification: _____ Signature of Preparer: _____ Date: _____

Control Area No.: _____ Is this area protected by an automatic sprinkler system? ☐ Yes; ☐ No. How Many Floors Does This Building Have? _____

1. Room No.	2. Chemical Name & Concentration (Not Trade Name)	3. CFC Class*		4. Quantity in Storage	5. Quantity in Use*			6. Stored in Approved Cabinet
		Physical	Health		Open System	Closed System		
				<input type="checkbox"/> gal. <input type="checkbox"/> lbs. <input type="checkbox"/> ft. ³	<input type="checkbox"/> gal. <input type="checkbox"/> lbs. <input type="checkbox"/> ft. ³	<input type="checkbox"/> gal. <input type="checkbox"/> lbs. <input type="checkbox"/> ft. ³	<input type="checkbox"/> Yes <input type="checkbox"/> No	
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				<input type="checkbox"/> gal. <input type="checkbox"/> lbs. <input type="checkbox"/> ft. ³	<input type="checkbox"/> gal. <input type="checkbox"/> lbs. <input type="checkbox"/> ft. ³	<input type="checkbox"/> gal. <input type="checkbox"/> lbs. <input type="checkbox"/> ft. ³	<input type="checkbox"/> Yes <input type="checkbox"/> No	

* Please see the instructions on the reverse side of this page for a list of CFC hazard classes and definitions of Open System use and Closed System use.

Page _____ of _____

Instructions for Completing the Building Occupancy Classification Inventory Form

A critical first step in the plan check process is the establishment of proper building occupancy classification. The occupancy classification determines the standard to which your plans will be reviewed. This form is a guidance document that has been prepared to expedite the review process. Please note that submittal of this form does not satisfy Hazardous Materials Business Plan (HMBP) Inventory reporting requirements.

Complete a separate inventory for each control area (or a single inventory for the entire building if control areas are not established). Group materials within each room by their primary California Fire Code (CFC) hazards, then indicate additional physical and health hazards. Where several classes are given (e.g., Oxidizer 4, 3, 2, 1), please indicate the appropriate one.

Physical Hazards*	Health Hazards*
Combustible Liquid – Class II, IIIA, IIIB	Corrosive
Combustible Fiber – loose, baled	Highly Toxic
Consumer Fireworks (Class C, Common) – 1.4G	Toxic
Cryogenics, flammable	
Cryogenics, oxidizing	
Explosives – Division 1.1, 1.2, 1.3, 1.4, 1.4G, 1.5, 1.6	
Flammable Gas – gaseous, liquefied	
Flammable Liquid – Class IA, IB, IC; Combination IA, IB, IC	
Flammable Solid	
Organic Peroxide – UD, Class I, II, III, IV, V	
Oxidizer – Class 4, 3, 2, 1	
Oxidizing Gas – gaseous, liquefied	
Pyrophoric Material	
Unstable (reactive) – Class 4, 3, 2, 1	
Water Reactive – Class 3, 2, 1	

* Definitions of physical hazards and health hazards can be found in the California Fire Code.

Definitions

Closed System – The use of a solid or liquid hazardous material involving a closed vessel or system that remains closed during normal operations where vapors emitted by the product are not liberated outside of the vessel or system and the product is not exposed to the atmosphere during normal operations; and all uses of compressed gases. Examples of closed systems for solids and liquids include product conveyed through a piping system into a closed vessel, system, or piece of equipment.

Control Area – Spaces within a building where quantities of hazardous materials not exceeding the maximum allowable quantities per control area are stored, dispensed, used or handled. *Refer to IBC Section 414.2 for additional information regarding control areas.*

Open System – The use of a solid or liquid hazardous material involving a vessel or system that is continuously open to the atmosphere during normal operations and where vapors are liberated, or the product is exposed to the atmosphere during normal operations. Examples of open systems for solids and liquids include dispensing from or into open beakers or containers; dip tank operations; and plating tank operations.

Make additional copies of this form if needed. Number each page appropriately.

INSTRUCTIONS

- (1) When more than one page is used for a storage facility, enter the page number and the total number of pages.
- (2) DATE—Enter the date of the application.
- (3) BUSINESS NAME—Enter business name and the street address for the specific “facility” for which the application applies and do not use general mailing addresses. A “facility” means a building or buildings, adjacent structures and surrounding land used by a single business entity at a single location or site.
- (4) TRADE NAME/CHEMICAL NAME—For each regulated material (includes both nonwaste and waste materials), provide the trade name followed by a slash and then the chemical name, proprietary name or chemical name of major constituents for mixtures (Example: Freon 113/trichlorotrifluoroethane). For each waste, the word “WASTE” must be included in the Chemical Name. For chemicals in containers smaller than one gallon, list them as “Assorted” followed by the hazard class (Example: “Assorted Flammable Liquids”).
- (5) HAZARD CLASS—Enter the hazard class using the abbreviations shown below. Use as many additional pages of this form as necessary to complete the report for each storage facility. The chemical’s hazard class is defined in the Hazardous Materials Ordinance, Chapter 24, MVCC.

HAZARD CLASSES AND ABBREVIATIONS

Combustible Liquid	CL	Flammable Solid	FS	Organic Peroxide-Solid	PEROX-S
Corrosive Gas	CORR-G	Infectious Substance	INFECT	Poisonous Material-Gas	POIS-G
Corrosive Liquid	CORR-L	Miscellaneous Hazardous		Poisonous Material-Liquid	POIS-L
Corrosive Solid	CORR-S	Materials-Liquid	MISC-L	Poisonous Material-Solid	POIS-S
Cryogens	CRYO	Miscellaneous Hazardous		Radioactive	RAD
Dangerous When Wet-Liquid	DANG-L	Materials-Solid	MISC-S	Spontaneously Combustible-Liquid	SPON-L
Dangerous When Wet-Solid	DANG-S	Nonflammable Gas	NFG	Spontaneously Combustible-Solid	SPON-S
Explosives	EXPL	Oxidizer-Liquid	OXY-L		
Flammable Gas	FG	Oxidizer-Solid	OXY-S		
Flammable Liquid	FL	Organic Peroxide-Liquid	PEROX-L		

- (6) MAP LOCATION—For each hazardous material, enter the room or area location designation as listed on the facility map. For example, if your map identifies each storage area by a letter of the alphabet, use the same letter in this space to identify the particular storage area where this material is located. If a material is found in more than one location, list the material, quantity, container type, etc. SEPARATELY FOR EACH LOCATION. All map locations listed here must be denoted on the Facility Map.
- (7) QUANTITY—Enter the maximum total quantity of regulated material that is stored at any one time in the storage facility for each chemical. Round off the quantities to the nearest whole gallon, pound or cubic foot. When the material is stored in a tank, the quantity reported shall be the capacity limit of the tank.
- (8) UNIT OF MEASUREMENT—Enter the unit of measurement (gal, lbs, or cu ft) for the regulated material.
- (9) CONTAINER TYPE—Indicate the type of container the regulated material is stored in using the abbreviations below:

AGT	Above-Ground Tank	Any container greater than 55 gallons.
BAG	Bag	50 lbs.
BGT	Below-Ground Tank	Any container stored below grade. Enter each container separately.
BOT	Bottle	1 gal.
BOX	Box	50 lbs.
CAN	Can	1 gal. or 1 lb.
CBY	Carboy	14 gallons.
CYL	Pressurized Cylinders or Canisters	200 cu. ft.
DEW	Dewer	43 gal.
DRUM	Metal, Plastic or Fiber Drums	55 gal.
EQU	Processing Equipment	Enter each piece of equipment separately.
JUG	Containers	1 gal.
OTH	Other	Enter each container separately.
PAIL	Pail	5 gal.
RC	Rail Car	Enter each container separately
SPRY	Spray Can (Aerosol Can)	16 oz.

- (10) TEMPERATURE—Indicate the temperature at which the regulated material is stored or processed using the abbreviations below:

AMB	Ambient (Room Temperature)
>AMB	Greater than Ambient
<AMB	Less than Ambient

- (11) PRESSURE—Indicate the pressure at which the regulated material is stored or processed using the abbreviations below:

AMB	Ambient (Room Temperature)
>AMB	Greater than Ambient
<AMB	Less than Ambient

ANNUAL WASTE PRODUCED—Enter the total annual production of each hazardous waste listed. This column should only be completed if the material is a waste.

CALIFORNIA WASTE CODE—If the material listed is a waste, enter the California Waste Code for it. This is a 3-digit number found on the hazardous waste manifest. This column should only be completed if the material is a waste.



Fire Department • Fire and Environmental Protection Division
500 Castro Street • City Hall • 4th Floor • Mountain View, California 94041-2010
650-903-6378 • FAX 650-962-1430

**Plan Check Requirements for:
INSTALLATION OR UPGRADE OF HAZARDOUS MATERIALS
STORAGE OR USE AREAS
(Update—02/11)**

The Fire and Environmental Protection Division of the Mountain View Fire Department (650-903-6378) will review your submitted plans using this plan check guideline.

Where appropriate, enter below the page number of your submitted plans where the item asked for is indicated and highlight the item in your plans. Include brochures, manufacturer's cut sheets and calculations with the plans when asked for.

If all the required information asked for is included in your plans or attachments, they can be reviewed and approved by the Fire and Environmental Protection Division as quickly as five working days.

Facility Name: _____ Address: _____

Architect Name: _____ Phone: _____ PC#: _____ Date: _____

GENERAL

- ☐ 1. A chemical inventory* list must be attached to the plans indicating quantities and proposed storage/use locations (MVCC 24.4.2.c). NOTE: The HMMP inventory can be used for this as long as the locations are also identified in the submitted plans.
- * For any containers exceeding 60-gallon capacity, identify their size, contents, concentration and hazard class.
- * For plating, dipping, coating or other processing tanks, identify their size, contents, concentration and hazard class.
- ☐ 2. Security measures shall be employed to restrict access to each hazardous materials storage or use area (MVCC 24.3.3). *Identify how access will be restricted for each area on the plans.* Plan Page Number: _____.
- ☐ 3. Simplified emergency evacuation procedures shall be posted in all hazardous materials storage or use areas (MVCC 24.4.3.b.1(c)). *Identify the text and location for these procedures.* Plan Page Number: _____.
- ☐ 4. Emergency spill equipment to contain and remove any hazardous materials leaks or spills shall be provided (MVCC 24.3.4). *Indicate the type of spill equipment and where it will be stored on*

the plans. (The Emergency Response II form of the HMMP may also be used as long as the locations are indicated on the plans.) Plan Page Number: _____.

- ☐ 5. *Material Safety Data Sheets (MSDS) must be attached to the plans for all mixtures and blends which are listed by trade names (MVCC 24.3.6).*

PRIMARY CONTAINMENT

- ☐ 6. If any of the proposed hazardous material storage containers will exceed 60-gallon capacity, *indicate the composition of these containers on the plans.* Plan Page Number: _____. (For office use only: Are these containers compatible with the materials being stored? _____)
- ☐ 7. If plating, dipping or other open processing tanks are utilized, *indicate the composition of these tanks on the plans.* Plan Page Number: _____. (For office use only: Are these tanks compatible with the materials being stored? _____)
- ☐ 8. Primary containment of containers and piping must be monitored for leaks. If the entire primary containment surface is visible, visual inspection is adequate; otherwise an electronic sensor must be used (MVCC 24.3.0.m.1). Indicate on the plans the type of leak detection monitoring for each hazardous material container storage area and piping run. Plan Page Number: _____.

a. If electronic sensors are used, they must be connected to audible and visual alarms (MVCC 24.3.0.m.4). *Attach manufacturer's cut sheets on the electronic sensors.*

b. If electronic sensors are used, their audible/visual alarms shall be located in areas normally staffed with personnel trained in emergency response procedures (MVCC 24.3.0.m.4). *Indicate the location to which the audible/visual alarm is sent.* Plan Page Number: _____.

SECONDARY CONTAINMENT

- ☐ 9. Each hazardous materials storage/use location shall be secondarily contained (MVCC 24.3.0.q). *Describe the secondary containment and its composition for each location on the plans.* Plan Page Number: _____.
- ☐ 10. If any secondary containment systems employ drains for discharging accumulated liquids (MVCC 24.3.0.q.2(d)):

a. *Show the drain lines and identify the locations where they terminate.* Plan Page Number: _____. (For office use only: Discharge to the storm drain is not allowed. Drain lines must discharge to an approved wastewater treatment system, collection system or sanitary sewer drain if uncontaminated. Does the proposed discharge meet these requirements? _____)

b. Drain line materials shall be compatible with the potential discharges. *Describe the materials of construction of the drain lines.* Plan page number: _____. (For office use only: Are these materials compatible with the potential discharges? _____)
- ☐ 11. If any secondary containment systems employ a concrete pad or berm, the concrete must be sealed with an epoxy coating that is compatible with the stored/used chemicals

(MVCC 24.3.0.q.2(a)). *Attach manufacturer's cut sheets which describe the coating and contains a compatibility chart which verifies that the chemicals being proposed for the storage/use area is compatible and will not degrade the coating.* (For office use only: Does the secondary containment maintain segregation of any incompatible hazardous materials spillage? _____)

- ☐ 12. If any secondary containment systems employ storage cabinets, *manufacturer's cut sheets of the cabinets must be attached to the plans* (MVCC 24.3.0.p).
- a. *Specify the proposed location(s) for each type of storage cabinet. Plan Page Number: _____.*
 - b. Cabinets shall be labeled either: "Hazardous—Keep Fire Away" and "Flammable" in red letters on a contrasting background (for flammable liquid storage) or "Corrosive—Acids" or "Corrosives—Bases" (for corrosive liquid storage). *State this on the plans. Plan Page Number: _____.*
 - c. Cabinets shall be constructed of metal (for flammable liquid storage) or lined with a noncorroding plastic if corrosives are stored. *Identify the materials of construction for the cabinets. Plan or Cut Sheet Page Number: _____.*
 - d. Metal thickness of the cabinet shall not be less than 0.044". *Specify the metal thickness. Plan or Cut Sheet Page Number: _____.*
 - e. Cabinets shall be double-walled with a 1.5" airspace between the walls. *Identify these dimensions. Plan or Cut Sheet Page Number: _____.*
 - f. Cabinets shall have self-closing and self-latching doors. *Describe the door assemblies. Plan or Cut Sheet Page Number: _____.*
 - g. Cabinets shall have a minimum height of 2" in the bottom sill. *Specify the sill height. Plan or Cut Sheet Page Number: _____.*
- ☐ 13. If any secondary containment systems employ over-pack drums, trays, troughs, etc., they shall be made of metal (if flammables are stored) or polyethylene plastic (if corrosives are stored). (MVCC 24.3.0.q.2(a)). *Identify the materials of construction on the plans. Plan Page Number: _____.* (For office use only: Does the secondary containment maintain segregation of any incompatible hazardous materials spillage? _____)
- ☐ 14. If any secondary containment systems are storage sheds, *attach a manufacturer's cut sheet on the shed.* (For office use only: Does the secondary containment maintain segregation of any incompatible hazardous materials spillage? _____).
- a. Flooring material shall be compatible with the chemicals being stored. (MVCC 24.3.0.q.2(a)). *Identify this material. Plan or Cut Sheet Page Number: _____.*
 - b. Doors shall be self-closing and self-latching (MVCC 24.3.0.p(6)). *Identify the door construction. Cut Sheet Page Number: _____.*
- ☐ 15. If any storage or use area will hold only a single container, the secondary container shall hold 110 percent of this primary container (MVCC 24.3.0.q.2(b)). Indicate the capacity of the secondary container and show the calculations* on the plans. Plan Page Number: _____. If any storage or use area will hold multiple containers, the secondary containment shall hold either 10 percent of the aggregate volume or 150 percent of the largest container, whichever is

greater (MVCC 24.3.0.q.2(c)). *Indicate the capacity of the secondary containment and show the calculations**.* Plan Page Number: _____.

* If this area is sprinklered, the calculations described above must also include 20 minutes of sprinkler flow for additional volume of the secondary container (MVCC 24.3.0.q.2(e)).

** This area must be protected by a roof, cover or other structure to prevent the accumulation of precipitation, condensate or other outside liquid (MVCC 24.3.0.q.2(d)).

LABELING/PLACARDING

- ☐ 16. An NFPA 704 placard shall be affixed to each entrance of a hazardous material storage or use area (including storage sheds) (MVCC 24.3.8). *Indicate where these placards will be placed on the plans.* Plan Page Number: _____.
- a. Placards shall be 10" x 10" with 4" numbers, minimum. *Specify the placard dimensions and number designations on the plans.* Plan Page Number: _____.
- ☐ 17. Chemical storage areas, drum and container storage areas, and cylinder rack storage areas shall be labeled as follows (MVCC 24.3.9.b):
- a. Areas shall be marked with a sign indicating the hazard class(es) of the chemicals stored. *Indicate the text of the signage on the plans.* Plan Page Number: _____.
- b. Empty container storage areas shall be marked "Empty Drum Storage" or equivalent. *Indicate the text and location of the signage on the plans.* Plan Page Number: _____.
- ☐ 18. Piping and tubing containing hazardous liquids and gases shall be labeled as follows (MVCC 24.3.9.d):
- a. At 20' intervals with the material name and direction of flow. Piping and tubing shall be marked at each point where changes in direction occur and where wall, ceiling or floor penetrations occur. *Indicate this on the plans.* Plan Page Number: _____.
- ☐ 19. Safety cans shall be labeled as follows (MVCC 24.3.9.e):
- a. Chemical name and hazard class of the liquid contained therein. *Indicate the text of the labeling on the plans.* Plan Page Number: _____.
- ☐ 20. Open tanks, vats and baths shall be labeled as follows (MVCC 24.3.9.f):
- a. Chemical name, hazard class and percentage concentration on the tank itself or on the wall directly behind the tank. *Indicate the text and location of the labeling on the plans.* Plan Page Number: _____.
- b. Rinse dragout tanks shall be marked "Rinse Water" or equivalent. *Indicate the text of the labeling on the plans.* Plan Page Number: _____.

- ☐ 21. Aboveground storage tanks (tanks exceeding 60-gallon capacity) shall be labeled as follows (MVCC 24.3.9.g):
- a. Chemical name. *Indicate the text of the labeling on the plans.* Plan Page Number: _____.
 - b. Tanks containing process cooling water, rinse water, deionized water, etc., shall be labeled with name of the material contained. *Indicate the text of the labeling on the plans.* Plan Page Number: _____.

STORAGE/HANDLING

- ☐ 22. Equipment and machinery used for processing hazardous materials shall be listed, designed and constructed in accordance with approved standards (MVCC 24.3.0.d.3). *Attach a list of process equipment/machinery to the plans and indicate its listing (UL, NFPA, etc.).* Plan Page Number: _____. *Attach manufacturer's cut sheets of this equipment to the plans.*
- ☐ 23. (For office use only): Is the chemical storage layout designed so that compatible hazard classes of chemicals are stored together and incompatible classes of chemicals are segregated by at least 20' unless the secondary containment systems completely isolate all possible spillage so that intermixing cannot occur? _____.
- ☐ 24. *Describe the method used to transport chemicals throughout the facility on the plans* (MVCC 24.3.0.w). Plan Page Number: _____. *If chemical carts or other transportation equipment is proposed, attach manufacturer's cut sheets of this equipment.*
- ☐ 25. If containers are used for accumulating hazardous liquids from a remote location (such as batch processing tanks or waste tanks), a liquid level control (i.e., high-level sensor with visual/audible alarm and pump shutoff) which will keep the container from overflowing is required (MVCC 24.3.0.n). (Visual inspection may suffice if the operator is within sight and immediate control of the filling device.) *Identify the liquid-level control on the plans.* Plan Page Number: _____. *Attach manufacturer's cut sheets on the liquid-level control and audible/visual alarm.*
- a. If an electronic sensor is proposed, its audible/visual alarm shall be located in areas normally staffed with personnel trained in emergency response procedures (MVCC 24.3.0.m.4). *Indicate the location to which the audible alarm is sent.* Plan Page Number: _____.
- ☐ 26. If any heated containers/tanks will be used for hazardous materials storage or use, a high-temperature power shutoff and low liquid-level power shutoff shall be provided (MVCC 24.3.0.k). *Identify their locations on the plans.* Plan Page Number: _____. *Attach manufacturer's cut sheets of all electronic liquid-level and high-temperature power shutoffs.*
- ☐ 27. If temperature-sensitive materials are used (for example, materials which must remain refrigerated), a redundant (back-up) temperature control system which will operate upon failure of the primary system shall be provided (MVCC 24.3.0.v). *Show this system and the electrical schematics for how it is tied into the primary system on the plans.* Plan Page Number: _____.

- ☐ 28. If compressed gas cylinders are proposed, all cylinders not in use shall be chained (not strapped) to a stationary structure (MVCC 24.3.0.b). *Show the stationary structure and describe the securement on the plans.* Plan Page Number: _____.
- ☐ 29. If dispensing of Class I flammables or Class II combustibles is proposed (including pouring waste flammables into a collection pail or drum), bonding and grounding shall be provided (MVCC 24.3.0.j). Grounding (copper) rods shall be 1/2" thick and at least 8' long and terminate in the ground. Bonding straps shall connect the dispensing container to the grounding device during filling or dispensing activities. *Show the bonding and grounding layout on the plans.* Plan Page Number: _____.
- ☐ 30. If shelves are used for hazardous materials storage, they shall be seismically braced (MVCC 24.3.0.s). *Show the stationary structure and type of securement on the plans.* Plan Page Number: _____.
- a. Safeguards across the front face of the shelves (metal lip guards or metal brackets) shall be provided to keep containers from falling or being knocked over (MVCC 24.3.0.s). *Show these guards/brackets on the plans.* Plan Page Number: _____.
- ☐ 31. If tanks, piping, valves or fittings used for storage/transfer of hazardous materials are exposed to vehicular traffic, bollards shall be installed (MVCC 24.3.0.o). Bollards shall meet the following:
- a. Constructed of steel not less than 4" in diameter and concrete filled. *Indicate this on the plans.* Plan Page Number: _____.
- b. Spaced not more than 4' apart on center. *Indicate the bollard spacing on the plans.* Plan Page Number: _____.
- c. Set not less than 3' deep in a concrete footing of not less than 15" in diameter. *Indicate the depth and footing diameter on the plans.* Plan Page Number: _____.
- d. Set with the top of the post not less than 3' above ground. *Indicate bollard height on the plans.* Plan page number: _____.
- e. Located not less than 5' from the tank/piping/valves. *Indicate distances between the bollards and tank/piping/valves on the plans.* Plan Page Number: _____.
- ☐ 32. If piping is installed for conveying liquids having a CFC health hazard ranking of 3 or 4, the following are required:
- a. Fail-safe-to-close emergency shutoff valves shall be installed at the point of use and at the hazardous materials source (MVCC 24.3.0.d.4(e)). Indicate on the plans the location of the shutoff valves. Plan page number: _____. *Attach manufacturer's cut sheets of the shutoff valve to the plans.*
- b. Pressurized piping shall be provided with excess flow control valves which shall be located as close to the hazardous materials source as possible (MVCC 24.3.0.d.4(d)). Indicate on the plans the location of the excess flow valve. Plan Page Number: _____. *Attach manufacturer's cut sheets of the shutoff valve and the calculation which determines its correct sizing to the plans.*

- ☐ 33. If piping is installed for conveying flammable, oxidizing or pyrophoric gases (such as hydrogen, silane, etc.), the following are required:
- a. Piping, valves and fittings made of either: (1) low melt-point materials such as aluminum, copper and brass; (2) materials which soften on exposure to fire (plastic); or (3) nonductile materials, such as cast iron, shall be suitable protected by fire-resistive construction such as gas cabinets or automatic fire sprinklers (MVCC 24.3.0.h.1(a)). *Indicate on the plans the materials of construction for piping conveying flammable, oxidizing or pyrophoric gases.* Plan Page Number: _____.
- If any of these items are constructed of materials described above, indicate the type of fire-resistive protection provided.* Plan Page Number: _____.
- b. Emergency shutoff valves at each point of use and at the source (MVCC 24.3.0.h.2). *Indicate the locations of the valves on the plans.* Plan Page Number: _____. *Attach manufacturer's cut sheets on the valves.*



Declaration of Exemption from Hazardous Materials Reporting Requirements

Company Name: _____

Address: _____

Primary Business Activity: _____ Phone Number: _____

Printed Name: _____ Title: _____

Signature: _____ Date: _____

We agree to store, handle or use hazardous or other regulated materials at or below the maximum exempted quantities listed below, in order to qualify for exclusion from City reporting requirements (MVCC §24.2.1). We acknowledge our obligation to submit an application for a hazardous materials permit and to keep current such permit if at any future time, these maximum exempted quantities are exceeded. We understand that delinquent permit fees and or civil penalties shall be assessed for failing to submit a complete hazardous materials permit application within thirty days of the onset of such storage, handling or use (MVCC §24.7.0)

Hazard Class	Maximum Exempted Quantities	
	Liquids (gallons)	Solids (pounds)
Combustibles	10	N/A
Corrosives (Acids and Bases)	10	50
Flammables	10	50
Miscellaneous Hazardous Materials	10	50
Oxidizers	10	50
	Compressed Gases (cubic feet)	
Non-Flammable Compressed Gases	200 cubic feet	
Flammable Compressed Gases	200 cubic feet	
Other Compressed Gases (Corrosive, Poison, etc.)	No exempt amounts	
	Non-Exempt Materials	
Cryogenics	No exempt amount	
Dangerous When Wet Materials	No exempt amount	
Explosives	No exempt amount	
Organic Peroxides	No exempt amount	
Poisonous Materials	No exempt amount	
Radioactive	No exempt amount	
Spontaneously Combustible Liquids	No exempt amount	
Hazardous Waste	No exempt amount	